Total Lightning Collaborations with NASA SPoRT and the National Weather Service

Christopher Darden, Brian Carcione, **Geoffrey Stano***

(And many others)
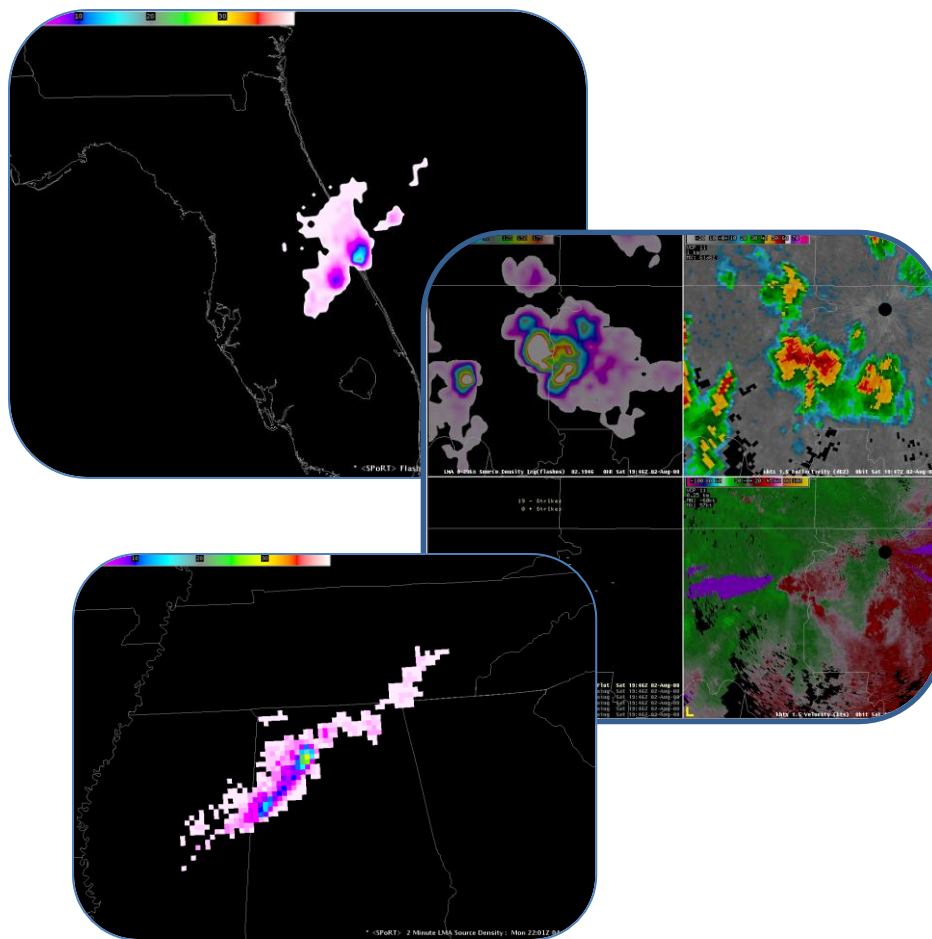
*ENSCO, Inc./NASA Short-term Prediction Research and Transition Center
Huntsville, AL

Southern Thunder Workshop
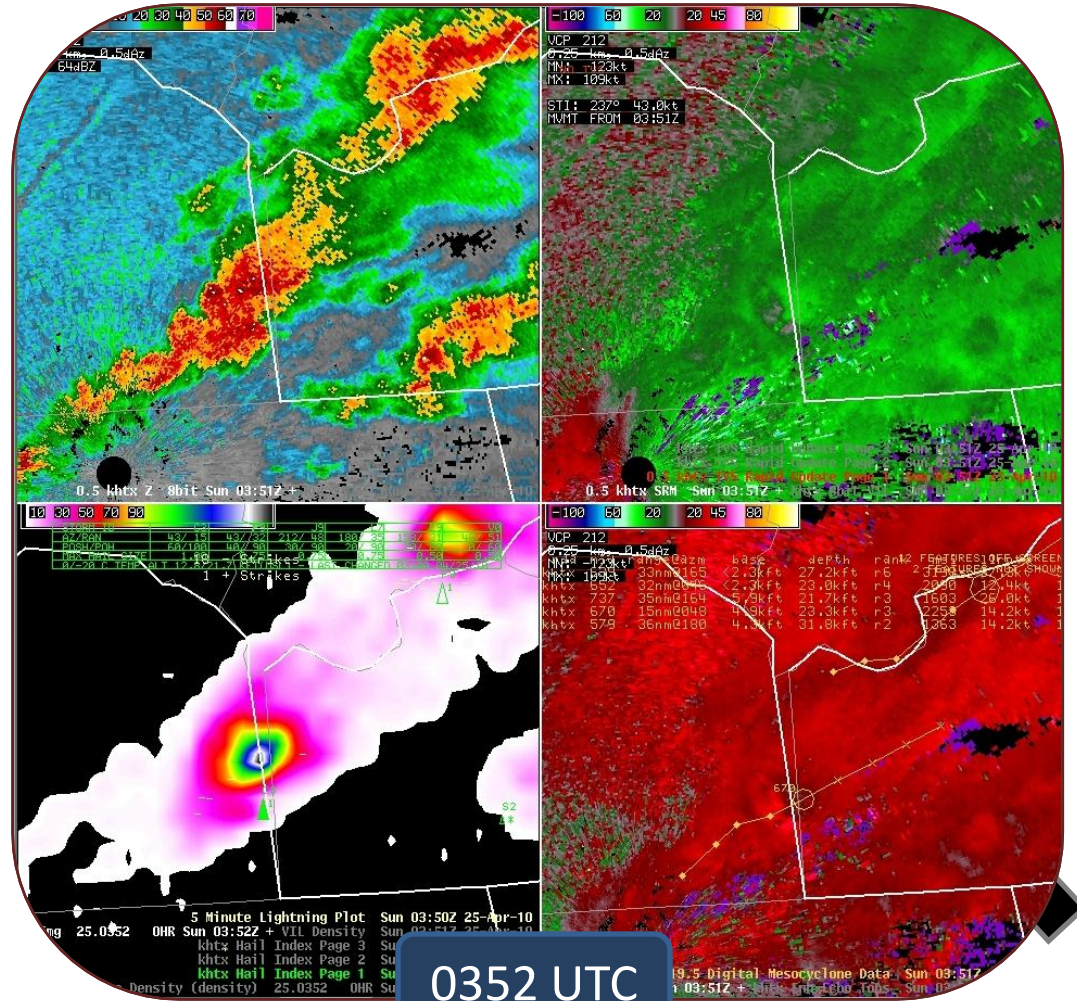
11-14 July, 2011

Norman, OK

History of Program

o Began in 2003
o Expanded initially to Birmingham and Nashville
o Next to Morristown
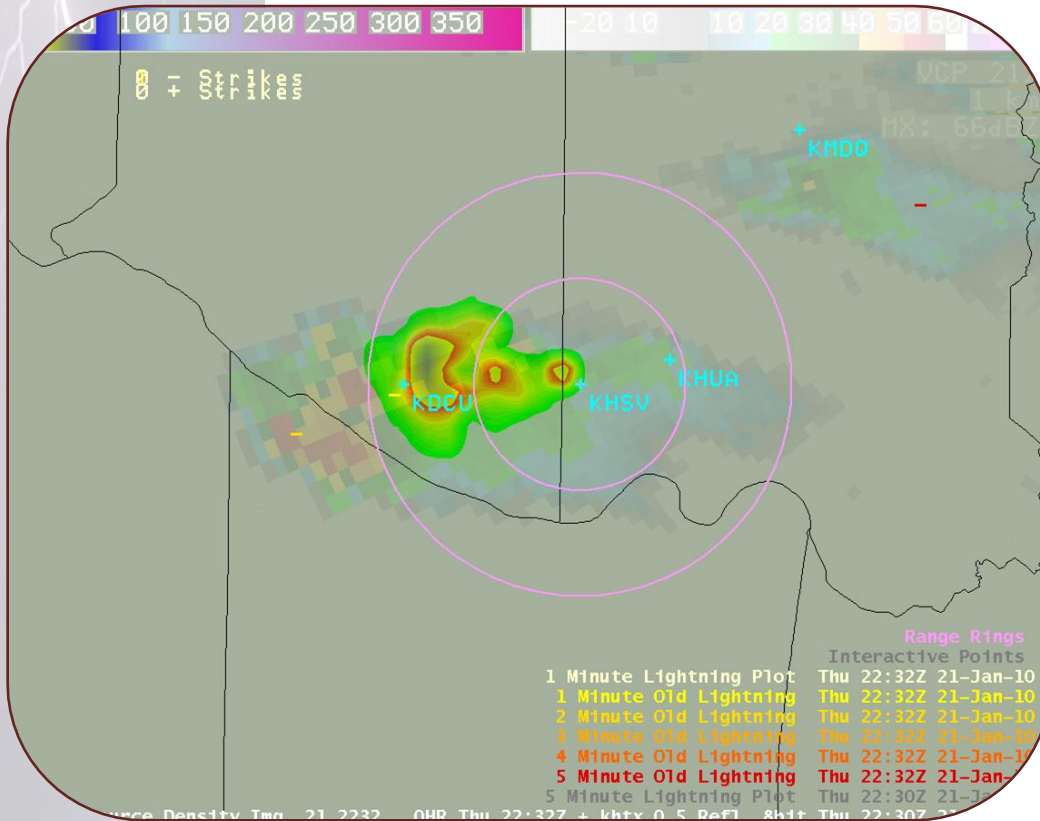o Incorporated Atlanta sensors
o 2010 – Efforts expanded to KSC LDAR

From the Forecasters

o *"Directly contributed to several warning decisions"*

o *"...LMA often helps 'tip the scales' towards issuing a warning"*

- WFO Morristown
- Note change around 0350
- Wait for another scan?
- Lightning jumps to 200
- POSH 40%
- Favorable environment
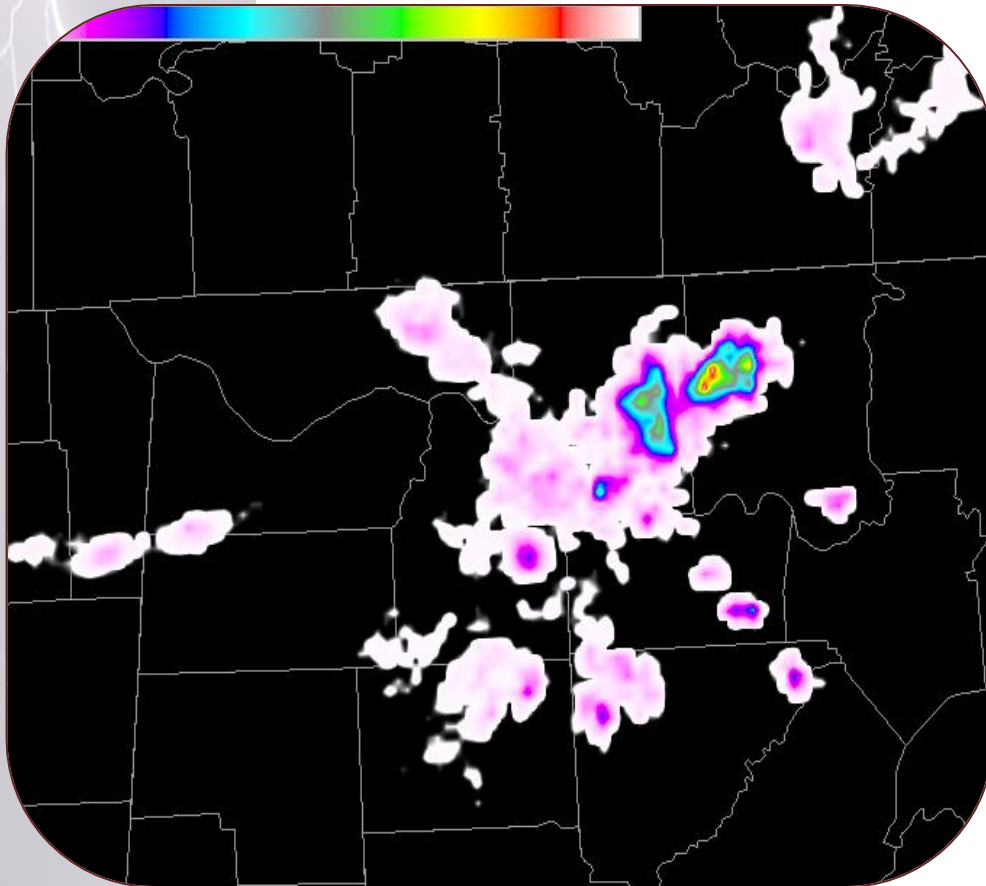- 20 minutes lead time
- Should warning be issued?

0352 UTC

From the Forecasters

- *"LMA spikes correlate well with updrafts...sound meteorology"*
- *"...LMA gives a good map on where to concentrate attention"*
- *"Very good for aviation"*
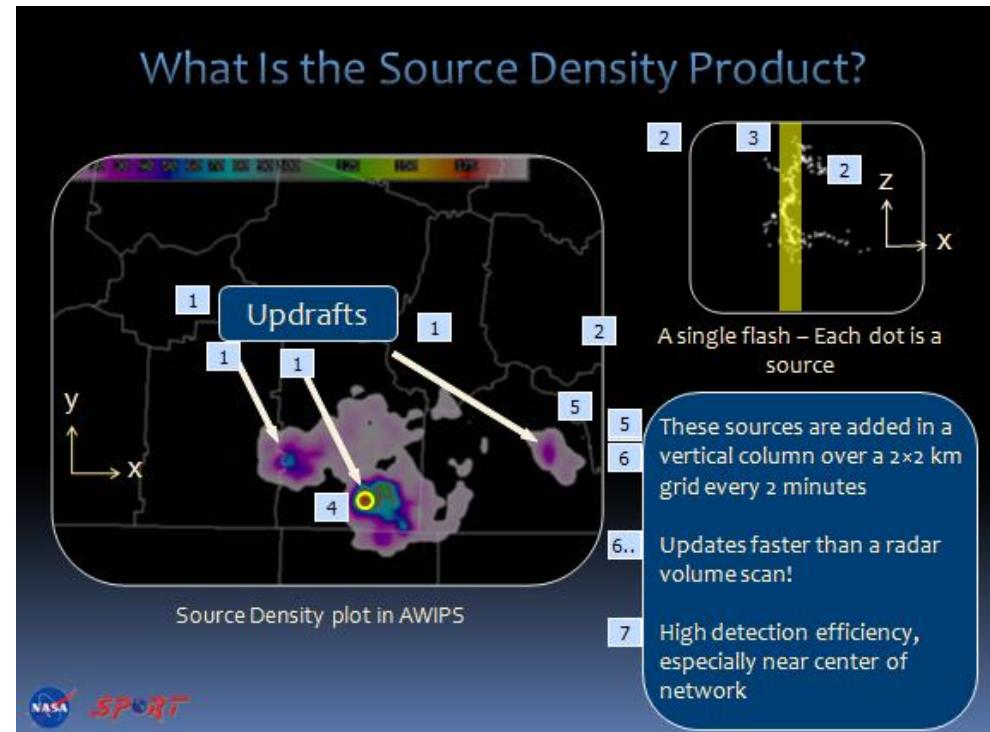
2232 UTC

AWIPS II Collaborations

- o Direct partnership with WFO Huntsville
- o Ingest and display plug-in
- o One plug-in, many products
- o SPoRT can support AWIPS I or AWIPS II simultaneously
- o Can test on SPoRT's or WFO's machines

Success From Training

- o *"Demonstrates use in marginal events"*
- o *"LMA started as a curiosity, but is now a procedure for many in the office"*
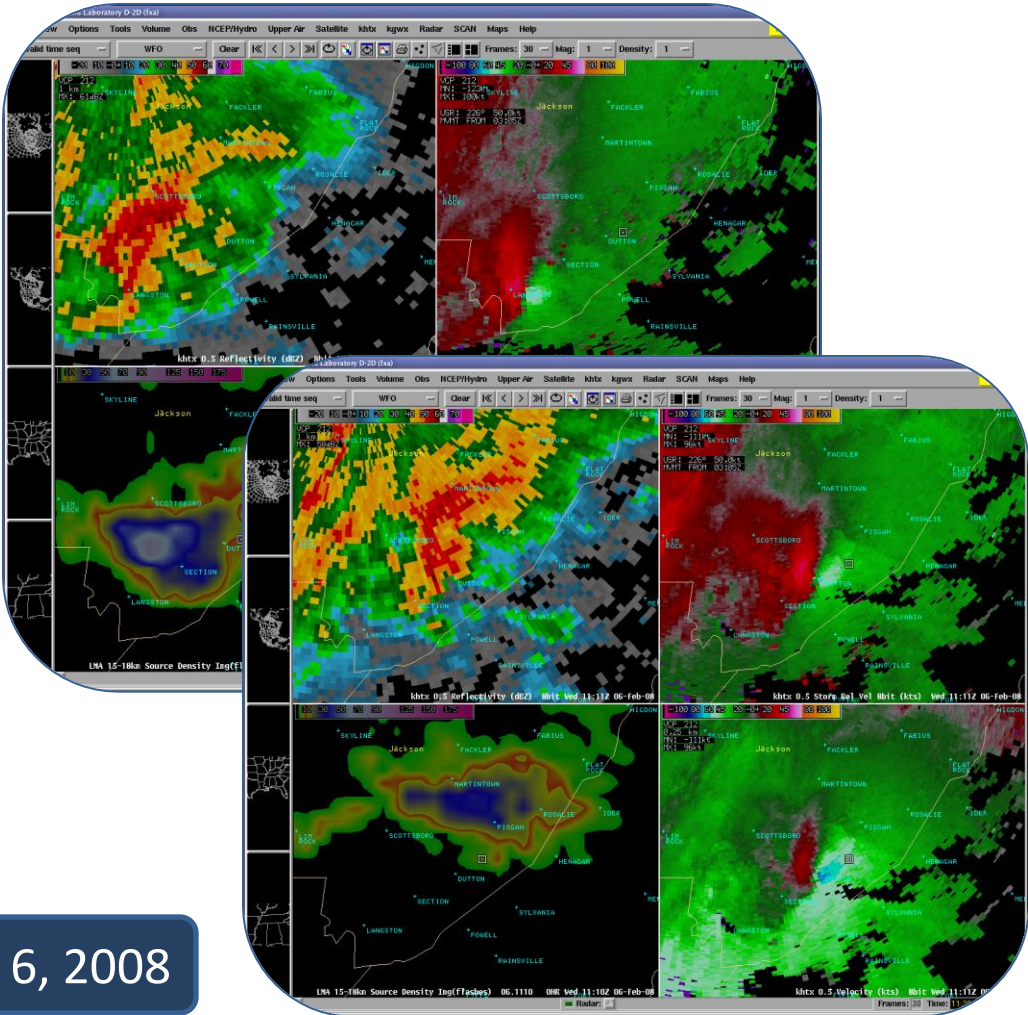- o Initial training just on what the product is

What Is the Source Density Product?

"Super Tuesday"
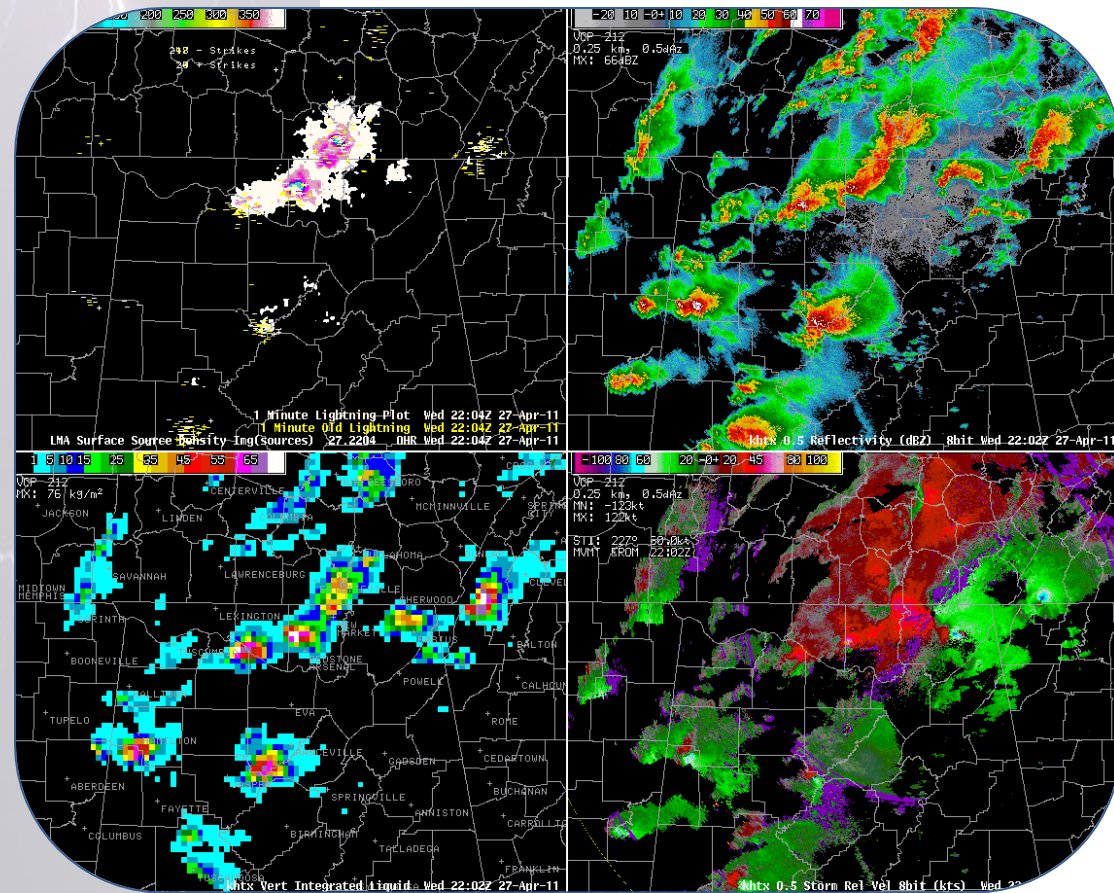

- *"LMA indicates where to concentrate attention"*
- *"LMA was not a 1st decision aid but led to stronger wording and increased confidence"*
- More than just lightning jumps!

February 6, 2008

SP⊕RT

NASA

April 27, 2011

- Primary emphasis on radar
- 37 confirmed tornadoes
- 3 EF-4s at one time
- LMA used
  - Available time limited
  - Network suffered damage
  - Power outages

Looking Forward

Total Lightning Products via SPoRT

Part II: Operational Uses

Geoffrey Stano — NASA SPoRT / ENSCO, Inc.
Brian Carcione — NWS Huntsville, AL / NASA SPoRT
Christopher Darden — NWS Huntsville, AL
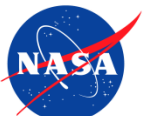
Created 22 February 2011

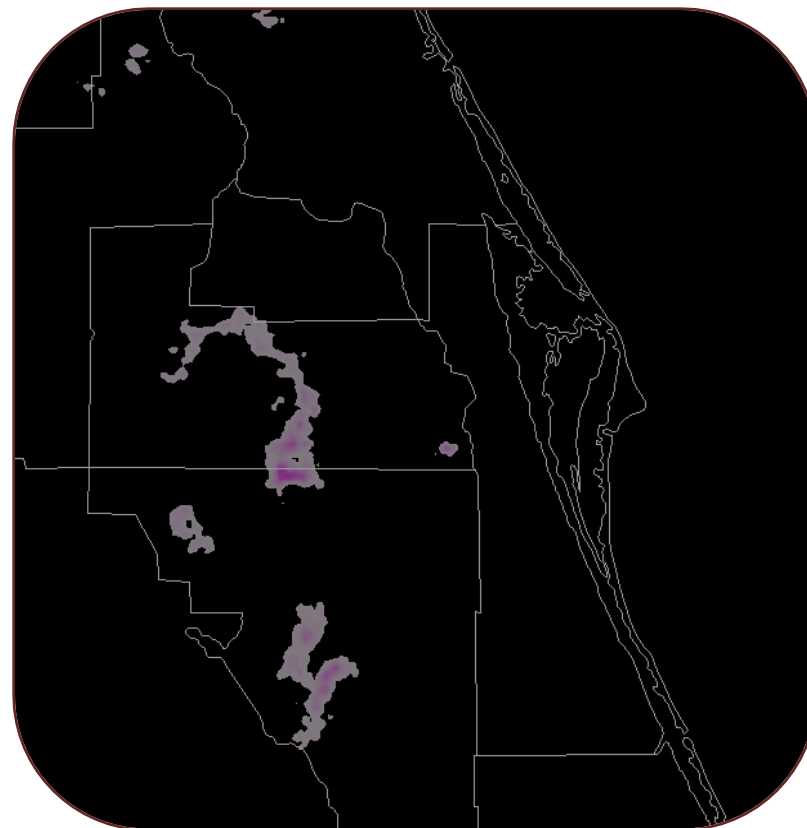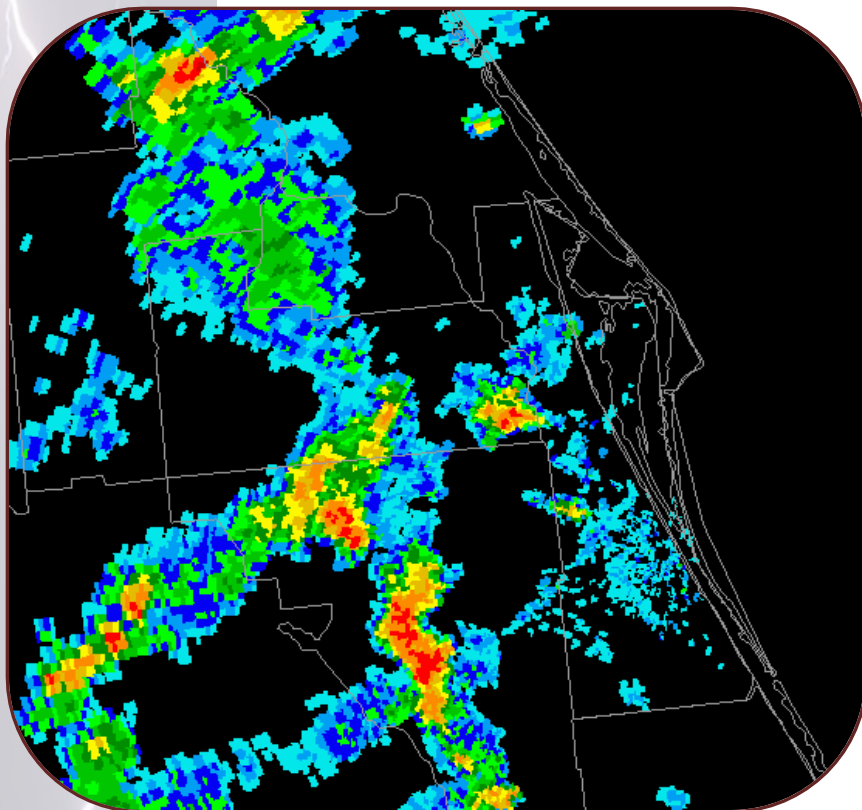transitioning unique NASA data and research technologies to operations

- o LMA was not an institutional product originally
- o Forecasters now want more detailed examples
- o Big challenge
  - o Quantify values
  - o What is "significant"
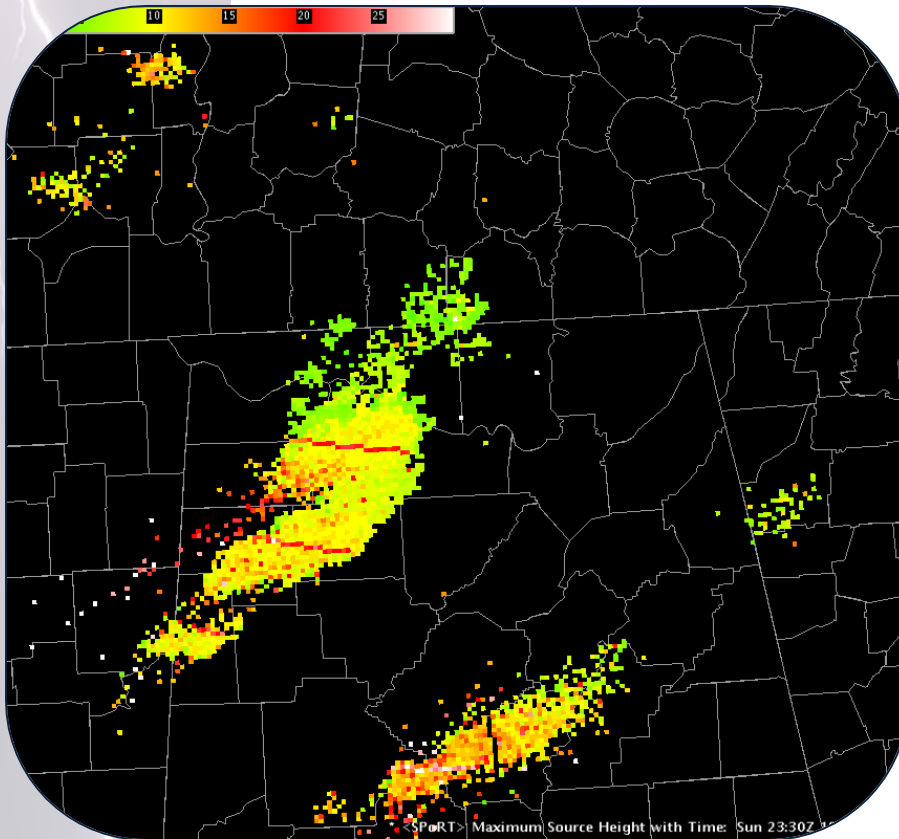- o New training starts this

Improve Lightning Safety

From WFO Melbourne

New Products?

o Improve utility

o Rapid accessibility

o Quantify output

   o Important GLM ability?

   o Less constrained detection efficiency

Questions?

Geoffrey Stano

geoffrey.stano@nasa.gov